movement of the frame relative to the platform, and

connecting the tube cavity generally between the platform and frame of the micropositioning stage so that an adjustment in length of the tube cavity effects an amplified movement of the frame relative to the platform wherein the magnitude of displacement between the frame and the platform corresponds with the change in length of the tube cavity as the tube cavity length is adjusted from its reference condition so that in order to provide a preselected displacement of the stage frame relative to the platform during the step of controllably adjusting, the tube cavity is adjusted in length by a corresponding amount.

19. The method as defined in claim **17** wherein the step of controllably adjusting includes the steps of

providing a first laser for generating a stabilized laser beam having a reference frequency;

providing a second laser for generating a laser of tunable frequency and wherein the etalon cavity is aligned to receive a portion of the tunable laser beam;

mixing the stabilized laser beam with another portion of the tunable laser beam to provide a mixed beam with a frequency beat;

measuring the beat of the mixed beam;

tuning the beam emitted by the second laser source to provide optimum beam transmission through the etalon tube cavity when the tube cavity is in its reference condition and maintaining the beam generated by the second laser source in tune with the etalon tube cavity as aforesaid as the tube cavity is adjusted in length from the reference condition; and

monitoring the difference between the beat measurement obtained when the length of the tube cavity is in its reference condition and the measured frequency beat as the length of the tube cavity is adjusted from the reference condition; and

comparing the monitored difference in beat measurements to a calculated difference in beat measurements which would exist when the length of the tube cavity is adjusted by a prescribed amount and halting the adjustment of the tube cavity when the monitored difference equals the calculated difference.

20. A method for calibrating a high accuracy measuring device, the method comprising the steps of:

providing a micropositioning stage having a platform and a frame which are attached to one another for movement of the frame relative to the platform;

providing a Fabry-Perot etalon including a tube cavity having a length which is adjustable from a reference condition;

connecting the tube cavity between the platform and frame of the micropositioning stage so that an adjustment in length of the tube cavity effects an amplified movement of the frame relative to the platform wherein the magnitude of the movement of the frame relative to the platform corresponds with the change in length of the etalon tube cavity as the tube cavity length is adjusted from its reference condition; and

controllably adjusting the length of the etalon cavity so that in order to provide a preselected magnitude of displacement of the stage frame relative to the platform for purposes of calibrating a measurement device, the etalon tube cavity is adjusted in length by a corresponding amount.

21. The method as defined in claim **20** wherein the step of controllably adjusting includes the steps of

providing a first laser for generating a stabilized laser beam having a reference frequency;

providing a second laser for generating a laser of tunable frequency and wherein the etalon cavity is aligned to receive a portion of the tunable laser beam;

mixing the stabilized laser beam with another portion of the tunable laser beam to provide a mixed beam with a frequency beat;

measuring the beat of the mixed beam;

tuning the beam emitted by the second laser source to provide optimum beam transmission through the etalon tube cavity when the tube cavity is in its reference condition and maintaining the beam generated by the second laser source in tune with the etalon tube cavity as aforesaid as the tube cavity is adjusted in length from the reference condition; and

monitoring the difference between the beat measurement obtained when the length of the tube cavity is in its reference condition and the measured frequency beat as the length of the tube cavity is adjusted from the reference condition; and

comparing the monitored difference in beat measurements to a calculated difference in beat measurements which would exist when the length of the tube cavity is adjusted by a prescribed amount and halting the adjustment of the tube cavity when the monitored difference equals the calculated difference.

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